

**EFFECTS OF FEEDING HABITS AND HABITATS ON FATTY ACID
PROFILES OF *Ehirava fluviatilis* (MALABAR SPRAT) IN SRI LANKA**

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ABSTRACT

The *Ehirava fluviatilis* is a clupeid found in Southern India and Sri Lanka, and their distribution is limited to the South-west part of the coastal line of Sri Lanka including the Negombo lagoon and Bolgoda Lake (Brackish water body). For the freshwater habitat, they have been recorded in mainly two reservoirs, namely Parakrama Samudra and Rajanaganaya. Therefore, this study was carried out to collect baseline information focusing on the impact of fatty acid profiles of their foods and flesh of *E. fluviatilis* fish species in the Bolgoda Lake and Rajanganaya reservoirs in Sri Lanka. The fatty acids (FAs) profile of *E. fluviatilis* of selected water bodies was investigated in flesh (muscle) and stomach contents. The stomach contents were determined by using a Sedgewick Rafter counting cell. The stomach contents and flesh containing FAs were analyzed separately using the Gas Chromatography (GC). Data analysis was conducted by one-way ANOVA statistical analyses with the level of significance at $P < 0.05$ (5%) using Minitab 16.0 Statistic packages. A principal component analysis (PCA) was carried to summarize the relative differences among their overall fatty acid profiles and to determine the contribution of individual FAs.

The predominant FAs recorded of the Bolgoda Lake population were Tetradecanoic acid (C 14:0), Pentadecanoic acid (C 15:0), 7,10,13,16-docosatetraenoic acid (C 22:4 (n-6)) and 7,10,13,16,19-Docosapentaenoic acid (C 22:5 (n-3)). C 15:0, 6,9,12-hexadecatrienoic acid (C 16:3 (n-4)), 9-Octadecenoic acid (C 18:1 (n-9)), 11-Eicosenoic acid (C 20:1 (n-9)), 5,8,11,14,17-eicosapentaenoic acid; EPA (C 20:5 (n-3)), C 22:4 (n-6) and C 22:5 (n-3) FAs were predominant in the stomach contents. At the same time, in the Rajanganaya reservoir population, C 14:0, C 15:0, 9-Hexadecenoic acid (C16:1 (n-7)), 9-Octadecenoic

acid (C 18:1 (n-9)), 11, 14-Octadecadienoic acid (C 18:2 (n-4), C22:5 (n-3) and 4,7,10,13,16,19-Docosahexaenoic acid; DHA (C 22:6 (n-3)) were predominant in the flesh. C 14:0, Hexadecanoic acid (C 16:0), 7,10-Hexadecadienoic acid (C16:2 (n-4)), 11-Octadecenoic acid (C 18:1 (n-7)), 9,12-Octadecadienoic acid (C 18:2 (n-6)), 13-docosenoic acid (C 22:1 (n-9)), C 22:5 (n-3) and C 22:6 (n-3) were recorded as predominant FAs in stomach contents. The only recorded difference from both populations was presence of C 18:2 (n-4) in the Rajanganaya reservoir population.

In this study, it was found through this study that the presence of specific FAs could be used as biomarkers to identify species. It may also be hypothesized that the difference in the FA profile may lead to colonization of marine origin *E. fluviatilis* in Rajanganaya reservoir as a freshwater lacustrine habitat.

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